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ABSTRACT

Two approaches to setting standards for the professional performance of teachers are contrasted. One involves a coherent professional belief system in which an internal standard is invoked within a conceptual framework. It is exemplified by Sigel's Distancing Model, and involves a theoretical standard for teacher performance and emphasizes the role of self-assessment in the professional development of teaching knowledge and skill. A teacher observation instrument is developed and designed to provide the teacher's own perception of instruction, curriculum and cognitive/social/affective dimensions of development. The second approach involves the standardized measurement of teacher knowledges and skills deemed essential for entry-level teacher competency. Examples such as the National Teacher Examinations (NTEs) are judged against standards determined by a content review process and a knowledge estimation panel (i.e., a jury approach). Expanded sources of validation for determining baseline teacher competencies are needed to link competence with performance and are discussed in relation to the planned short-term and long-term revision of the NTE Commons. (Author/RL)

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SETTING STANDARDS FOR PERFORMANCE

Title of Presentation

Measurement of Teacher Competence

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SETTING STANDARDS FOR PERFORMANCE

Measurement of Teacher Competence

INTRODUCTION

This paper will describe two approaches to setting standards for the professional performance of teachers. One involves an external, consensus-based standard for judging knowledge acquisition as a measure of teacher competence. Acquisition of a required knowledge base, however, does not assure that performance of the certified teacher will be acceptable. Unlike other service professions in which "client accountability" provides a monitoring function, the beginning teacher must develop a coherent professional belief system in which an internal standard is invoked and measured against real classroom demands. This aspect of teacher competence suggests that a second approach, involving ongoing self-assessment, be encouraged to provide the practicing teacher with professionally acceptable standards for judging his or her own classroom performance. It is argued that two distinct test modes--standardized measurement of externally validated knowledges, and self-assessment relying on theoretically based observation tools--may contribute to the development of teacher competence.

> *Both externally and internally based verifications of professional standards impact on the developing professional and on the profession of teaching.*

External standard setting

Externally based verifications have traditionally focused on the certification or licensing process, and more recently have been extended to include the early probationary (or apprenticeship) period of the beginning teacher. In this model, an attempt is made to draw on expertise in the profession to identify teaching competencies, entry-level skills and knowledges, and successive mastery levels. While assumptions are made regarding some minimum level of academic knowledge required for effective teaching, these are considered necessary but insufficient. Standards are determined within a broad framework of requirements which may extend through the provisional certification period (typically from 1 to 3 years of beginning teaching), and may very well include objective, systematic observations of teacher performance in classroom settings.

Since the state of the art has not yet resolved the issue of appropriately valid criteria for predicting effective teaching, validity of standards rests on the judgment of content experts. Current attempts to "professionalize" education at levels comparable to medicine and law, and to assure a rational relationship between a test and job requirements, have resulted in increased emphasis on practitioner involvement in the validation process.

In this framework, the "professional" is one who has been certified (or licensed), following successful completion of an accredited program of study. However, increasing numbers of states (at least 12) are now requiring some form of teacher testing and proposals or bills have recently been introduced in 9 or 10 others (Time, 1980).

Educational Testing Service's National Teacher Examinations (NTE), are used for either certification, program evaluation or selection in at least 23 states of the United States. Some state requirements for permanent certification now include provisional certification periods for beginning classroom teachers, and draw on some form of objective assessment for determining permanent certification.

Internal standard setting

Internally based verifications tend to view teacher competence on a career continuum, beginning with preservice training and extending throughout the professional development cycle of the experienced practitioner. In this model, the preservice and inservice teacher is encouraged to test alternative hypotheses related to teaching and learning, to develop a philosophy of teaching in harmony with current research findings, and to build a repertoire of skills and knowledges that address actual classroom demands.

However unrealistic the assumption may be, beginning teachers are usually believed to be prepared to assess their own ability to articulate professional needs, set goals, develop workable self-evaluation and feedback methodologies, and, generally, to induce positive change in themselves and, subsequently, in their pupils. Joyce, Howey and Yarger (1979) and Edelfelt (1976) have advanced an idealized model of a self-directed professional. The model emphasizes personal, professional development that is purposeful, is the choice of an individual teacher, in a setting appropriate to choice. It is sanctioned not by legal standards but rather by personal or peer influences, and rewarded by improved competence and self-satisfaction. The teacher here must be equipped to translate theory

into practice, drawing on past training to direct his or her growth. Therefore, proponents of this model argue that it is uniquely suited to the inservice developmental phase of professionalization, distinct from a degree, licensing, or credentialling process which is clearly prerequisite to professional service.

The self-directed professional is projected as a motivated, dynamic individual who builds standards through a process of successive constructions and experiences. (It is generally assumed that preservice training has provided the necessary bases for this to take place.) Ultimately, the successful practitioner is one who emerges with a theoretically and practically sound conceptualization of teaching and learning. It works, it is adaptable to a variety of situations and contexts, it is highly predictable, and it is measurable. In other words, it has validity in terms of professionally and personally acceptable theoretical standards used to define teaching "competence."

The two models--self-assessment and standardized competency testing--are guided by different assumptions, rely on different validation procedures, and vary in terms of the demands made on the beginning professional. Nevertheless, both may be employed in the service of improving teacher competence. Used at appropriate developmental junctures, these approaches aid in:

- Identification of the necessary (although insufficient) knowledges and skills needed for entry-level teaching
- Measurement of these knowledges and skills prior to entry into the profession, during the apprenticeship period, and throughout professional career development

- "Professionalization" of the teacher who ultimately becomes responsible for standard setting.

Both models have utility and relevance within the present educational climate in the United States--a climate heavily impacted by economic, political, and social forces. The key elements of this climate center around public demand for increased accountability, cost efficiency, professional credibility, quality education with a focus on the "basics," fairness and openness in teacher evaluation/selection practices, and parity in educational decision making (Rosner, 1979).

STANDARD MEASUREMENT OF TEACHER COMPETENCY: CONSENSUS-BASED VERIFICATION OF IMPORTANT TEACHER KNOWLEDGES

The first approach to be discussed involves the standardized measurement of teacher knowledges and skills deemed essential for entry-level teacher competency. This is exemplified by the National Teacher Examinations (NTE) which are developed at Educational Testing Service, utilizing a broad range of expertise both within and outside the organization. When used for teacher selection purposes, the NTE are ultimately judged against standards determined by a Content Review Panel and a Knowledge Estimation Panel (i.e., a "jury approach"). It has become increasingly apparent that expanded sources of validation for determining baseline teacher competencies are needed to link competence with performance. The incorporation of broadened validation checks, beginning early in the test development process, is reflected in the current effort to revise the Commons portion of the NTE which are designed to measure general and professional knowledge.

The Common Examinations are achievement tests designed to reflect the four-year undergraduate training of prospective primary and secondary level teachers. Twenty-five NTE Area Examinations are also available, covering a range of specialized fields of training. The Commons are designed for NTE candidates, regardless of their choice of teaching level or specialization. In my role as Director of the NTE Commons Revision Project, I have become acutely aware of the complex task involved in the development of the test specifications, which frame and direct choice of test content, cognitive emphases, and items. Inputs into this and later aspects of test development have been broadened to assure the appropriateness of test content to beginning teacher competency.

Environmental impact on teacher testing

Recent activity in state boards of education and legislatures indicates a high interest in testing for teaching competencies as a method of certification, and a recent study by the Education Commission of the States suggests a trend in this direction (Vlaanderen, 1980). This pattern appears to be spreading quickly and has received public support. A recent Gallup Poll revealed that 85% of the public sampled (a cross-section of 1,514 adults) feel very strongly that teachers should be required to pass state board examinations in addition to meeting college requirements, and that they should be tested periodically to see if they are keeping up to date with developments in their field (Phi Delta Kappan, September, 1979). The concern with poor academic preparation of children has contributed to demand for basic literacy and "quality assurance" in the delivery of professional services.

With the recent formation of the NTE Policy Council and an NTE Research and Development Committee, both short term and longer range revision plans

for the Commons are being formulated. The plans call for increased flexibility in the use of test materials and more appropriate content coverage. The goal is to provide a measure of teacher competence that is valid, useful, and fair to users and potential users (state departments of education, deans of education, school districts, students) and that will be acceptable to the lay public that is demanding higher standards for teacher certification and selection. In states where cutoff scores on the NTE are used to determine teacher selection, legally sanctioned content validation procedures, to be described, protect against violations of fair certification practices used in initial teacher selection.

The Commons plan for broadened input into test development

I would like to describe the approach being used in setting the test specifications for the new Commons (target date: 1982), and the preliminary procedures that have been added to assure content validity in terms of teacher competency. I will then describe the content validation procedures required in the selection context. In all instances, there is concern that the tests adequately assess the important and necessary knowledge teachers need for entry into the profession. Both procedures contribute to setting standards in terms of professional and public expectancies.

The planning stage of the revision incorporates a new dimension in NTE--the use of Blue Ribbon consultants in the field of education to help in the formulation of a sound rationale for each of the three modules that will make up the Commons: General Education, reflecting the liberal arts portion of undergraduate training; Communication Skills, covering reading, writing, listening (long-term plans call for speaking assessment also); and Professional

Education, reflecting preservice professional training, including student teaching aspects. These modules will be independent and available separately or in any combination to be used at appropriate points in the preservice training period. Current users have requested General Education and Communication Skills tests for screening into teacher education programs, with diagnostic subsections, if possible. Research and Development Committee discussions of long-range plans call for additional modules (e.g., Classroom Management) which may provide valuable measures during the initial teaching years.

The consultants have provided valuable insights and perspectives on the needs of the profession, the training institutions, and the schools, and all have urged that experienced, able practitioners share in the test development process. The Committees of Examiners* have been expanded and reorganized to add balanced numbers of practicing classroom teachers and teacher educators. As plans for test rationale develop, the concept of the well-informed, educated citizen is being explored as a framework for a thematic approach to the General Education and the Communication Skills tests. An attempt will be made to provide coverage of broad, generative, useful knowledge required of literate, educated persons, leaving the specialized field knowledge to the NTE Area Examinations. The Professional Education model suggests a teacher who possesses the necessary knowledge and skills for selecting and appropriately using information from an array of theoretical and practical alternatives.

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*Committees of Examiners work with ETS test development specialists to develop the test specifications and items.

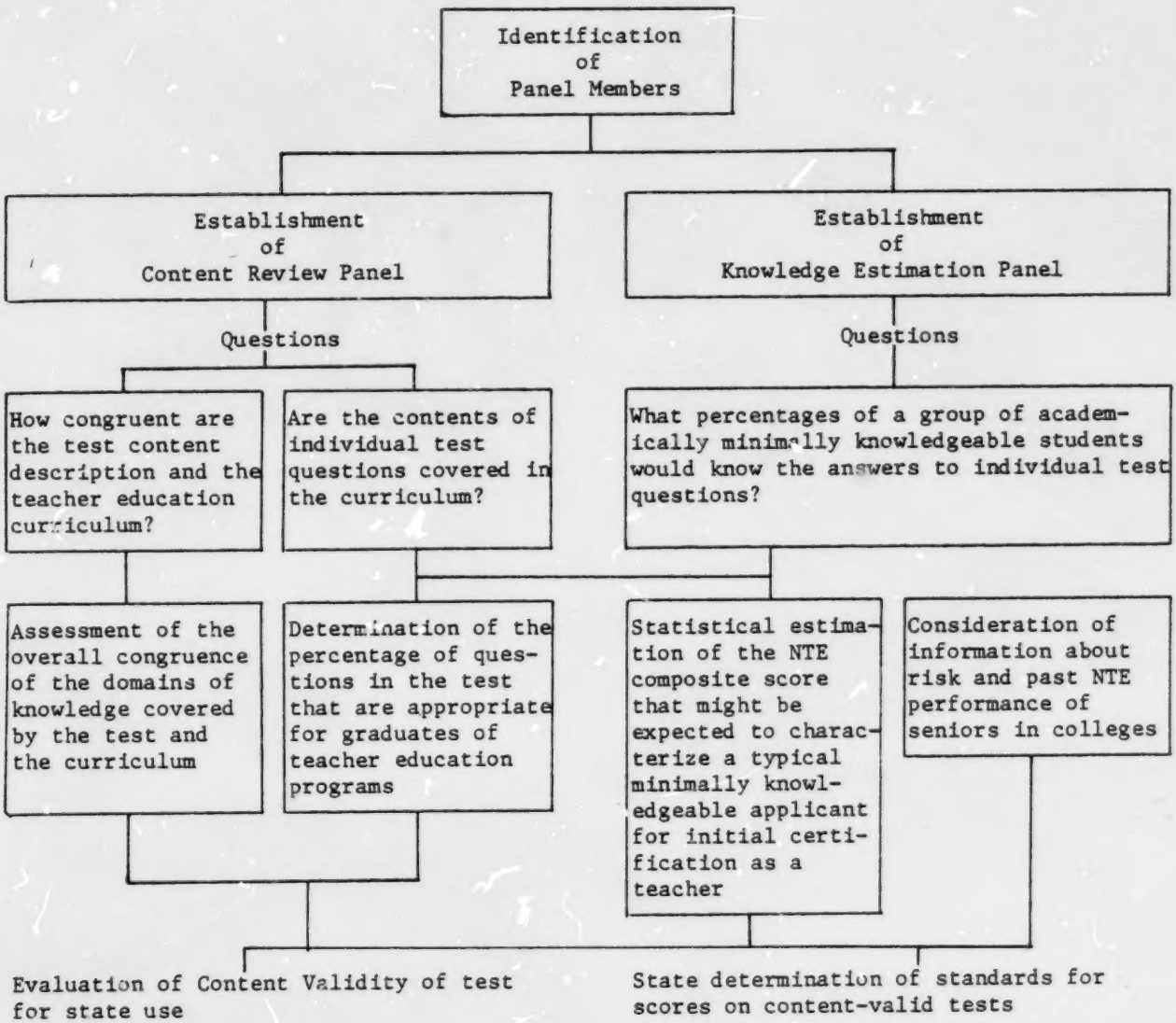
Input from consultants, ETS specialists, and Committees of Examiners composed of practitioners and teacher educators will be used to develop preliminary test specifications and prototype items. A specifications validation study, consisting of a number of surveys, will be conducted. These surveys will address several major constituencies: (1) college faculty responsible for training teachers, (2) practitioners (K-12 classroom teachers), (3) student teachers completing their training, (4) supervisors responsible for evaluating beginning teachers, and (5) the lay public who impact on policy in public education--state/school boards of education, legislators, and parents. The test specifications will thus be validated against teacher education curricula, classroom practice, and the public image of a competent, entry-level teacher. Survey results will be used in developing sample tests, which will subsequently be pretested and reviewed before final form assembly.

Content validation for teacher selection

Content validation is required in user states who set cutoff scores in making decisions about the certification of candidates for initial teaching positions. One acceptable method involves the exercise of professional judgment under relatively controlled conditions. This method is consistent with the professional guidelines established in Standards for Educational and Psychological Tests, published by the American Psychological Association in 1974. Table 1 summarizes this legally sanctioned content validation procedure. It is currently used by NTE when ETS technical assistance is requested by a user state seeking to establish a cut-score for selection use of certification. All documentation resulting from such a study is made available for public examination.

TABLE 1

Content Validation in a Selection Context of Certification


Identification of Panel Members
Establishment of Content Review Panel
Establishment of Knowledge Estimation Panel
Questions
Questions
How congruent are the test content description and the teacher education curriculum?
Are the contents of individual test questions covered in the curriculum?
What percentages of a group of academically minimally knowledgeable students would know the answers to individual test questions?
Assessment of the overall congruence of the domains of knowledge covered by the test and the curriculum
Determination of the percentage of questions in the test that are appropriate for graduates of teacher education programs
Statistical estimation of the NTE composite score that might be expected to characterize a typical minimally knowledgeable applicant for initial certification as a teacher
Consideration of information about risk and past NTE performance of seniors in colleges
Evaluation of Content Validity of test for state use
State determination of standards for scores on content-valid tests

Adapted from Report on a Study of the Use of the National Teacher Examinations by the State of North Carolina, Educational Testing Service, Princeton, New Jersey, 1976, p. 74.

Expert panels and judges representing teacher education faculty, subject matter specialists, and, in some instances, school teachers are carefully prepared and convened. Content Review Panels evaluate the congruence between the content specified in the NTE and the curricula content prescribed in teacher education programs of the state under study. Omissions and emphases are checked. This is done for the overall specifications as well as for each item. The Knowledge Estimation panels estimate the percentages of minimally knowledgeable candidates who would be expected to know the answer to each individual test question. Both content appropriateness and item estimates are used in arriving at a statistical estimate of an NTE score that would be expected of a minimally knowledgeable candidate.

This validation procedure assures that the test reflects training curriculum, but also that a student going through the program will be expected to demonstrate a minimal level of performance, as reflected in the test score. The cutoff score is not set by NTE or ETS, but arrived at and determined by the responsible authorities in a certifying user-state, which must ultimately decide the level that is both practically and professionally sound.

SELF-ASSESSMENT: INTERNAL VERIFICATION OF TEACHER COMPETENCE

The second approach involves a theoretical standard for teacher performance and emphasizes the role of self-assessment in the professional development of teaching knowledge and skill. Sigel's Distancing Model, tested at the ETS Child Care Research Center from 1974 to 1979, exemplifies this approach. The

author's research into this teaching model resulted in the development of a teacher observation instrument designed to provide systematic feedback to teachers (or prospective teachers) trained to use theoretically derived teaching strategies in classroom settings.* The teacher's own perceptions of instruction, curriculum, and cognitive/social/affective dimensions of development become vital elements in the overall task of setting standards of performance. "Teacher evaluation" is transformed into an internal process involving the teacher as a learner who experiences, in Piagetian terms, "equilibratory cognitive improvements." Teacher competence is viewed on a career continuum and verified against a theoretical standard.

Distancing used in this context refers to the separation of a symbol (or representation) from its referent (an object, event, emotional state, etc.). Representational thinking involves mental actions used in referring to things, events, and feelings not only in the immediate, palpable present, but for distant, past, and future references. When one represents, one must also anticipate and make inferences, remember, generalize and, at a very abstract level, think in terms of transformations and changes of state. (An

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*I was fortunate to have spent a number of years working with Dr. Irving Sigel, a Distinguished Research Scientist at Educational Testing Service, to develop the Distancing Teaching Model, to operationalize it, and to systematically observe trained teachers using an instrument we designed for this purpose. My study involved two years of intensive, systematic observation of four teachers in the preschool setting. We developed and piloted the instrument at the ETS-based school, which served 20 middle and lower class, 3-to-5 year old children representative of a cross-section of backgrounds one would typically find in the northeastern region of the United States.

example of the last is the ability to understand why ice will melt under heated conditions, and to recognize that the element itself is comparable, in certain respects, across transformations.) The ability to handle language, numbers, reading, ideas, etc. all rely on representational competence. Even personal and social insights involved in communicating, adapting, and empathizing rely on a level of representational thought.

The inservice training of the experimental teachers observed over the five-year period involved some home reading, opportunities in school for discussions with colleagues, and use of audiotapes, videotapes and a self-monitoring instrument. The teachers received guidance from the school director (it could have been a teacher leader) who thoroughly understood and accepted the theoretical framework and goals and could help translate these into practical classroom strategies and curriculum.

Research bases

Research support for interactive teaching models such as the Distancing Model is evident in studies of the teaching process as it affects children's cognitive development (Beller, 1969a, 1969b; Beller in Travers, 1973; Bernstein, 1961; Brophy, 1970; Gahagan and Gahagan, 1968; Hess and Shipman, 1965; Prather, 1969; Rosenshine, 1971; Schoukert and Kouchton, 1968; Smothersill, Olson and Moore, 1971). The studies suggest that: (1) patterns of teaching can and do affect children's thinking, and (2) teaching strategies are definable, observable, measurable, and trainable and may induce cognitive development in young children.

Observational instruments have been used extensively to collect data about teacher-child interaction. Viewed as tools for testing hypotheses,

they operationally define specific variables selected within a particular conceptual framework. While there is a paucity of theoretically based observational instruments, well-articulated programs reflect an attempt to specify and monitor needed teaching strategies in terms of program goals (Coller, 1972; Dunkin and Biddle, 1974; Gordon in Travers, 1973; Medley and Mitzel, 1963; Rosenshine and Furst in Travers, 1973; Simon and Boyer, 1967, 1970).

The Distancing Model of Teaching

A complete description of the distancing teacher study is available (Rosner, 1978), and I will only briefly introduce here the theoretical bases and the instrument to illustrate how self-assessment can contribute to standard setting and thus serve to enhance teacher competency and proficiency.

The Distancing Model is based on the notion of dialectics, in which the significant agent (the teacher) through interaction with the learner, creates an appropriate tension or conflict (Sigel, 1972; Sigel and Cocking, 1977). Resolution of the problem or task is achieved through the child's need to represent in order to regain, in Piagetian terms, "equilibration." Used in the framework of Bruner's (1973) emphasis on the cultural determinants of representational thought, and Werner's and Kaplan's (1963) social-affective links to symbolic competence, the self-conscious intentional use of "distancing" by the teacher stimulates the child's own construction of knowledge.

In this process, the distancing teacher becomes a hypothesis-builder, using theory to guide his or her own decision making as well as that of the children.

Distancing strategies call on the child to differentiate the environment in time (i.e., present-past-future), in space (here and not here), and in appearance as opposed to reality (observable or inferential), thus contributing to distance between the subject and the object of thought. A teaching strategy which makes a particular representational demand on the child's thinking is termed a "distancing" strategy.

Distancing strategies may vary in level of demand from a simple request for recall (e.g., label) to a complex request for an inference (e.g., infer cause-effect) or to even higher-order requests for generalizations (e.g., generalize, conclude). It is important to note that a distancing teaching strategy calls on the child to mentally represent, relying heavily on inquiry, rather than on the teacher's use of distancing, which may involve an inordinate amount of telling.

In the study, the teachers who used distancing selected and coded portions of their own audiotaped playbacks of teacher-child interactions using an outline they devised, and a workable coding system. The Teacher Observation Instrument, a theoretically based observation instrument which was developed and used to evaluate the ETS preschool programs, served as a model for the identification of distancing, task management and child management teacher strategies. Essential aspects of distancing were identified, practiced, and coded. They included the form of the teacher's statement (ask-tell), the tense (past-present-future), and the representational level (label----conclude). These teachers were also interested in contextual aspects of their interactions. The study explored possible interrelationships among these variables throughout the school year.

Results of Distancing Teacher Study

The net results of this study revealed that teachers who were trained in distancing and encouraged to monitor their own growth using this model increased their questions (as compared to telling); talked less; used more representational demands on children to reproduce, to recall, anticipate and infer; and, in general, created a classroom environment calling for higher-level problem solving thinking behaviors. Their awareness of their own demands and of their children's responses was sharpened, enabling them to design an appropriate curriculum geared to encourage a broad range of representational thinking. For example, science and cooking activities were increased since they provided opportunities for transformation, inference, or generalization types of representations. The teachers' questions increased from lower-level label or recall kinds of questions to more complex questions which required the children to analyze, synthesize, and draw conclusions. The exciting part was that the teachers were able to monitor and understand the link between a theory of teaching and a theory of learning. It made sense, and feedback in this concrete form made it possible to identify success and replicate it.

The training protocols and procedures provided by the Teacher Observation Instrument became helpful diagnostic tools for monitoring teacher performance within a framework of specified goals. Information on the teacher-child-teacher interaction loop served as a guide to program development and as a means of exploring program effects on both teachers and children.

Implications of self-evaluation for development of teacher competence

We have found that self-monitoring and analysis of feedback, provided through the simple process of audiotaping select portions of teacher-child

dialogues, can contribute to teacher growth. Is this a viable and valid approach for measuring preservice and beginning teacher "competence"?

The following "action research" questions will illustrate the practical use of the Distancing Teacher Observation Instrument for this purpose:

1. What proportion of time do I (the teacher) spend on cognitive as compared to task and child management areas?
2. Is an inquiry pattern prevalent, or do I appear to use more telling in my interactions with children?
3. What level and quality of cognitive demand do I use in my classroom transactions with children?
4. How do I follow up on children's responses to those demands? Do I elaborate on them, or do I activate children to follow a sequence of reasoning patterns?
5. What evidence do I have that my children are being asked to think about more than the present, palpable environment? Do I direct children to use past experiences in assessing present alternatives and in anticipating future possibilities?
6. How do I handle the area of child management? Is social behavior being structured as power-authoritative constraints on children, or are children being asked to involve themselves in the decision-making, problem-solving situations that arise?
7. Are my teaching strategies directed to the reasoning appropriate for my children or do they require the processing of information that is beyond their developmental level?

Many simplified uses of this instrument and the verbatim protocols that are generated are apparent. A single workshop introducing the instrument and its conceptual framework can provide the impetus for the teacher's ingenuity and desire to improve teaching performance as he or she searches for professional identity in a nonthreatening environment.

Teachers have an opportunity, as professionals, to share their growth process with their colleagues--discussing, refining, and reorganizing their information and skills. Since teachers appear to have unshaken faith in their own subjective impressions (B. Rosner in Ingenkamp, 1968) they will "buy in" to a system in which their own judgments are fairly weighted in proportion to the validity accorded to psychometric procedures.

CONCLUSION

To summarize, I have attempted to describe two distinct models used to set standards for the measurement of teacher competence. Both internal and external approaches are necessary to a developing professional, since research and experiential bases are involved in determining knowledge and skill acquisition.

To argue against standard setting in education on the basis of an acknowledged lack of predictive validity is to argue against change. Inability to relate absolute levels of performance on tests (whether observation instruments or multiple-choice tests) to success on the job only confirms that multiple criteria are necessary for judging teaching competency. Standard setting, of course, can be inappropriately used to blunt sociopolitical problems facing educational systems and productivity.

But standards based on sound theoretical and practical judgments about what constitutes beginning teacher competency provide a necessary measure of growth and change in a developing professional.

Intuitively, there is no doubt that a professional must ultimately be responsible for his or her ongoing professional development, but equally compelling is the notion that some safeguards to entry into the profession are also necessary. Both approaches to standard setting contribute to improving the quality of the teachers to whom we entrust our children.

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MEASURING TEACHER COMPETENCE

Frieda C. Rosner, Educational Testing Service

This paper will contrast two approaches to setting standards for the professional performance of teachers. One involves a coherent professional belief system in which an internal standard is invoked within a conceptual framework. The other relies on consensus-based standard for judging knowledge acquisition and performance. Their dissimilar methodologies should not confuse the educational researcher who must distinguish between the paradigms that structure his research and the questions that direct his inquiry. Paradigmatic assumptions provide the conditions and constraints of a model and contribute to the interpretation of research findings. The quest for standards by which professional performance is judged requires that these assumptions be tested against real world concerns and aid in the identification of knowledges that will best serve practice. It is argued that a variety of test modes should be invoked toward these ends.

The first approach to be discussed involves a theoretical standard for teacher performance and emphasizes the role of self-assessment in the professional development of teaching knowledge and skill. Sigel's Distancing model, tested at the ETS Child Care Research Center from 1974 to 1979 exemplifies this approach. The author's research into this teaching model resulted in the development of a teacher observation instrument designed to provide systematic feedback to teachers (or prospective teachers) trained to use theoretically-derived teaching strategies in classroom settings. The teacher's own perception of instruction, curriculum and cognitive/social/affective dimensions of

development becomes a vital element in the overall task of setting standards of performance. "Teacher evaluation" is transformed into an internal process involving the teacher as a learner who experiences, in Piagetian terms, "equilibratory cognitive improvements". Teacher competence is viewed on a career continuum and verified against a theoretical standard.

The second approach involves the standardized measurement of teacher knowledges and skills deemed essential for entry-level teacher competency. For example, the National Teacher Examinations (developed at ETS) are judged against standards determined by a content review process and a knowledge estimation panel (i.e., a jury approach). Expanded sources of validation for determining baseline teacher competencies are needed to link competence with performance. This will be discussed in relation to the planned short-term and long-term revision of the NTE Commons.

This paper will explore the relative impact of internally- vs. externally-based verifications of professional standards on the developing professional and the profession of teaching.